***If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.***
***The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.***
***Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.***

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

# 4.120.16.h Reliquifier Building 1005E (PEER 19) ODH Tests

| C-A-OPM Procedures in which this Attachment is used. | | |
|---|---|---|
| 4.120.16 | | |
| | | |
| | | |

Hand Processed Changes

| HPC No. | Date | Page Nos. | Initials |
|---|---|---|---|
| | | | |
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| | | | |

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

V. Castillo

**4.120.16.h Reliquifier Building 1005E (PEER 19) ODH Tests**

## PASS ANNUAL ACCEPTANCE TEST PROTOCOL

**Division A Software Filename and Checksum: Title:_____ Checksum: _____**

**Division B Software Filename and Checksum: Title:_____ Checksum: _____**

**Initial testing complete:**

**Test Team Leader's Name (Print): _____Life Number: _____**

**Test Team Leader's Name (Sign): _____Date: _____/____/_____**

**Acceptance test procedure complete (following repairs and retesting if required):**

**Test Team Leader's Name (Print): _____Life Number:_____**

**Test Team Leader's Name (Sign): _____Date: _____/____/_____**

**Test results reviewed by:**

**Safety Section Head's Name (Print):_____Life Number:_____**

**Safety Section Head's Name (Sign):_____Date: _____/____/_____**

**Test results accepted by Radiation Safety Committee:**

**RSC Member's Name (Print):_____Life Number: _____**

**RSC Member's Name (Sign):_____Date: _____/____/_____**

**1.1 Conduct a visual check on Peer 19 ODH boxes in Reliquifer Building following Table 1 below**
**√ = ok, x = problem**

| ODH BOXES | Verify mechan condn. ok | Verify elec. condn. ok | ODH boxes | | | | Verify all X's corrected |
|---|---|---|---|---|---|---|---|
| | | | Division A | | Division B | | |
| | | | Lcd Rdg | Tp2 – Tp4 Vltg | Lcd Rdg | Tp2 – Tp4 Vltg | |
| 5E-ODB1 | □ | □ | % | V | % | V | □ |
| 5E-ODB2 Sampling System | □ | □ | % | V | % | V | □ |

## Table 1 – Summary of visual check on ODH boxes in the Reliquifier Building

□ **Check for Acceptance of visual check on Peer 19 ODH boxes in Reliquifer Building**

**1.2 Verification of valid calibration of ODH sensors in Peer 19, following Table 2 below**
**√ = ok, x = problem**

| ODH sensor | Verify valid calibration | Record calibration date | Verify all x's corrected | Record new calibration date |
|---|---|---|---|---|
| AS5E-1 | □ | _____/_____/_____ | □ | _____/_____/_____ |
| AS5E-2 Sampling sensor | □ | _____/_____/_____ | □ | _____/_____/_____ |

**Table 2 – Verification of valid calibration of ODH sensors in Reliquifier Building**

□ **Check for Acceptance of verification of valid calibration of ODH sensors in Peer 19**

**1.3 Test of Div A ODH Lower sensor AS5E-1 in 5E-ODB1 using Jumper**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **JUMPER** | **Tp2 and Tp4** on the **Div A pcb in 5E-ODB1** | |
| □ | **VERIFY** | **Reliqr. Div A ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div A blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ | **ALARM** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **TURN** | **Div A** Bypass Switch **to** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **STOP** |
| | **TURN** | **Div A** Bypass Switch **from** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **CONTINUE** |
| | **REMOVE** | **Jumper** between **Tp2 and Tp4** on the **Div A pcb in 5E-ODB1** | |
| | **AFTER** | **> 30 Secs** | |
| □ | **VERIFY** | **Reliqr. Div A ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div A blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Div A Test Acceptance of Lower sensor AS5E-1 using Jumper**

**1.4 Test of Div B ODH Lower sensor AS5E-1 in 5E-ODB1 using Jumper**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **JUMPER** | **Tp2 and Tp4** on the **Div B pcb in 5E-ODB1** | |
| □ | **VERIFY** | **Reliqr. Div B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div B** □ | **ALARM** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **TURN** | **Div B** Bypass Switch **to** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **STOP** |
| | **TURN** | **Div B** Bypass Switch **from** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **CONTINUE** |
| | **REMOVE** | **Jumper** between **Tp2 and Tp4** on the **Div A pcb in 5E-ODB1** | |
| | **AFTER** | **> 30 Secs** | |
| □ | **VERIFY** | **Reliqr. Div B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Div B Test Acceptance of Lower sensor AS5E-1 using Jumper**

**1.5 Test of ODH Lower sensor AS5E-1 in 5E-ODB1 with gas**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **FLOW** | **Helium or Nitrogen across sensor AS5E-1** | |
| □ | **VERIFY** | **MCR** sees **Lower sensor AS5E-1 Div A** □ and **Div B** □ | **ALARM** |
| | **RECORD** | Oxygen **trip** level for **Div A** | **_____ %** |
| | **RECORD** | Oxygen **trip** level for **Div B** | **_____ %** |
| □ | **VERIFY** | **Reliqr. ODH** alarm is | **SOUNDING** |
| | **HALT** | **Flow** of gas on **AS5E-1** | |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **WAIT** | For **AS5E-1** to clear (level ~ trip-level above) | |
| □ | **VERIFY** | **MCR** sees **Lower sensor AS5E-1 Div A** □ and **Div B** □ | **OK** |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Acceptance of Test of ODH Lower sensor AS5E-1 in 5E-ODB1 with gas**

**1.6 Test of Div A ODH Upper (Sampling) sensor AS5E-2 in 5E-ODB2 using Jumper**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **JUMPER** | **Tp2 and Tp4** on the **Div A pcb in 5E-ODB2** | |
| □ | **VERIFY** | **Reliqr. Div A ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div A blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2: Div A** □ | **ALARM** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **TURN** | **Div A** Bypass Switch **to** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **STOP** |
| | **TURN** | **Div A** Bypass Switch **from** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **CONTINUE** |
| | **REMOVE** | **Jumper** between **Tp2 and Tp4** on the **Div A pcb in 5E-ODB2** | |
| | **AFTER** | **> 30 Secs** | |
| □ | **VERIFY** | **Reliqr. Div A ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div A blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Div A Test Acceptance of Upper sensor AS5E-2 using Jumper**

**1.7 Test of Div B ODH Upper (Sampling) sensor AS5E-2 in 5E-ODB2 using Jumper**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **JUMPER** | **Tp2 and Tp4** on the **Div B pcb in 5E-ODB2** | |
| □ | **VERIFY** | **Reliqr. Div B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2: Div B** □ | **ALARM** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **TURN** | **Div B** Bypass Switch **to** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **STOP** |
| | **TURN** | **Div B** Bypass Switch **from** Bypass | |
| □ | **VERIFY** | **All Strobes and Alarms** | **CONTINUE** |
| | **REMOVE** | **Jumper** between **Tp2 and Tp4** on the **Div A pcb in 5E-ODB2** | |
| | **AFTER** | **> 30 Secs** | |
| □ | **VERIFY** | **Reliqr. Div B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Div B Test Acceptance of Upper (Sampling) sensor AS5E-2 using Jumper**

**1.8 Test of ODH Upper (Sampling) sensor AS5E-2 in 5E-ODB2 with gas**

| | | | |
|---|---|---|---|
| □ | **VERIFY** | **MCR** sees **Sampling System: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Lower Sensor AS5E-1: Div A** □ and **Div B** □ are | **OK** |
| □ | **VERIFY** | **MCR** sees **Upper (Sampling) Sensor AS5E-2: Div A** □and **Div B** □ are | **OK** |
| | **FLOW** | **Helium or Nitrogen ~ 1" from far input port of Sampling System** | |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2 Div A** □ and **Div B** □ | **ALARM** |
| | **RECORD** | **Time for Trip** | **_____ secs** |
| | **RECORD** | **Oxygen** trip level for **Div A** | **_____ %** |
| | **RECORD** | **Oxygen** trip level for **Div B** | **_____ %** |
| □ | **VERIFY** | **Reliqr. ODH** alarm is | **SOUNDING** |
| | **HALT** | **Flow** of gas in **Sampling System** | |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **SOUNDING** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A** □ and **Div B** □ are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A** □ and **Div B** □ are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A** □ and **Div B** □ are | **OPEN** |
| | **WAIT** | For **AS5E-2** to clear (level ~ trip-level above) | |
| □ | **VERIFY** | **MCR** sees **Upper sensor AS5E-2 Div A** □ and **Div B** □ | **OK** |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1** □**,** and **5E-ODB2** □ are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext** □**, W-in** □**, E-in** □**, E-ext** □ are | **OFF** |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |

□ **Check for Acceptance of Test of ODH Upper (Sampling) sensor AS5E-2 in 5E-ODB2 with gas**

**1.9 Test of Sampling System Pump**

| | | | |
|---|---|---|---|
| | **SELECT** | **Airflow** from the **Sampling System Panel View (SSPV) menu** | |
| | **RECORD** | **Airflow** value from **SSPV** | _____ |
| | **RECORD** | **HiThresh** value from **SSPV** | _____ |
| | **RECORD** | **LoThresh** value from **SSPV** | _____ |
| | **RECORD** | **Offset** value from **SSPV** | _____ |
| | **SELECT** | **Exit** from **SSPV** menu to get **Operation** | **STATUS** |
| □ | **VERIFY** | **Operation Status** is | **NORMAL** |
| | **CLOSE** | **Flow valve** to **Sensor** | |
| □ | **VERIFY** | After ~ **_____ Secs SSPV shows** | **TROUBLE** |
| □ | **VERIFY** | **MCR** sees **AS5HE1 □, -2 □ Div A** and **B** | **ODH** |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1 □,** and **5E-ODB2 □** are | **SOUNDING** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1 □,** and **5E-ODB2 □** are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext □, W-in □, E-in □, E-ext □** are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A □** and **Div B □** are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A □** and **Div B □** are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A □** and **Div B □** are | **OPEN** |
| | **OPEN** | **Flow valve** to **Sensor** | |
| □ | **VERIFY** | **MCR** sees **AS5HE1 □, -2 □ Div A** and **B still** | **ODH** |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1 □,** and **5E-ODB2 □** are | **SOUNDING** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1 □,** and **5E-ODB2 □** are | **FLASHING** |
| □ | **VERIFY** | **All red Strobes: W-ext □, W-in □, E-in □, E-ext □** are | **FLASHING** |
| □ | **VERIFY** | **MCR** sees **West Fan 1**: **Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **Central Fan 2: Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **East Fan 3: Div A □** and **Div B □** are | **ON** |
| □ | **VERIFY** | **MCR** sees **West Vent 1: Div A □** and **Div B □** are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **Central Vent 2: Div A □** and **Div B □** are | **OPEN** |
| □ | **VERIFY** | **MCR** sees **East Vent 3: Div A □** and **Div B □** are | **OPEN** |
| | **GO TO** | **Main menu on SSPV** (Hit Enter key twice) | |
| | **SELECT** | **Silence** option | |
| | **ENTER** | **Password** | |
| | **SELECT** | **Reset and Hit Enter** | |
| □ | **VERIFY** | **After _____ secs (~ 15 secs acceptable) SSPV Alarm** is | **OFF** |
| □ | **VERIFY** | **MCR** sees **AS5HE1 □, -2 □ Div A** and **B** | **OK** |
| □ | **VERIFY** | **Div A** and **B ODH** alarms on: **5E-ODB1 □,** and **5E-ODB2 □** are | **OFF** |
| □ | **VERIFY** | **Div A** and **B blue strobes** on: **5E-ODB1 □,** and **5E-ODB2 □** are | **OFF** |
| □ | **VERIFY** | **All red Strobes: W-ext □, W-in □, E-in □, E-ext □** are | **OFF** |

| | | | |
|---|---|---|---|
| | **After** | **> 90 secs** | |
| □ | **VERIFY** | **West Fan 1**: **Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **Central Fan 2: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **East Fan 3: Div A** □ and **Div B** □ are | **OFF** |
| □ | **VERIFY** | **West Vent 1: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **Central Vent 2: Div A** □ and **Div B** □ are | **CLOSED** |
| □ | **VERIFY** | **East Vent 3: Div A** □ and **Div B** □ are | **CLOSED** |
| | **SELECT** | **Exit** from **SSPV** menu to get **Operation** | **STATUS** |
| □ | **VERIFY** | **Operation Status** is | **NORMAL** |
| | **SELECT** | **Airflow** from the **Sampling System Panel View (SSPV) menu** | |
| | **RECORD** | **Airflow** value from **SSPV** | **_____** |
| | **RECORD** | **HiThresh** value from **SSPV** | **_____** |
| | **RECORD** | **LoThresh** value from **SSPV** | **_____** |
| | **RECORD** | **Offset** value from **SSPV** | **_____** |
| | **RESET** | **Reliquifier ODH** in **MCR** | |
| | **LEAVE** | **SSPV** in menu with **Operation Status** | **NORMAL** |
| □ | **VERIFY** | **MCR** sees **AS5HE1** □**, -2** □ **Div A** and **B** | **OK** |

□ **Check for acceptance of Test of Sampling System Pump**

**END OF TEST PROCEDURE**

**TTL: Sign for completion of initial testing: _____**

**Date: _____/____/_____**

**TTL: Sign for completion of final testing: _____**

**Date: _____/____/_____**